



US005467102A

United States Patent [19]**Kuno et al.**[11] **Patent Number:** **5,467,102**[45] **Date of Patent:** **Nov. 14, 1995**

[54] **PORTABLE DISPLAY DEVICE WITH AT LEAST TWO DISPLAY SCREENS CONTROLLABLE COLLECTIVELY OR SEPARATELY**

[75] Inventors: **Yoshinori Kuno**, Saitama; **Noboru Tanabe**; **Koichi Hasebe**, both of Kanagawa, all of Japan

[73] Assignee: **Kabushiki Kaisha Toshiba**, Kawasaki, Japan

[21] Appl. No.: **411,924**

[22] Filed: **Mar. 28, 1995**

Related U.S. Application Data

[63] Continuation of Ser. No. 113,637, Aug. 31, 1993, abandoned.

Foreign Application Priority Data

Aug. 31, 1992 [JP] Japan 4-230732

[51] Int. Cl.⁶ **G09G 3/02**

[52] U.S. Cl. **345/1**; 345/901; 345/903

[58] Field of Search 345/1, 2, 3, 173, 345/179, 901, 903; 358/449

References Cited**U.S. PATENT DOCUMENTS**

4,159,417 6/1979 Rubincam 345/901
4,545,023 10/1985 Mizzi 345/173

4,631,596 12/1986 Yaguchi 358/449
4,746,981 5/1988 Nidan 345/1
4,876,657 10/1989 Saito 345/1
4,884,068 11/1989 Matheny 345/1
5,049,862 9/1991 Dao 345/179
5,128,662 7/1992 Failla 345/903
5,184,956 2/1993 Langlais 345/1

FOREIGN PATENT DOCUMENTS

2-77085 3/1990 Japan 345/3
2-257364 10/1990 Japan .
3-217959 9/1991 Japan .
9105327 4/1991 WIPO 345/173

Primary Examiner—Richard Hjerpe

Assistant Examiner—Matthew Luu

Attorney, Agent, or Firm—Foley & Lardner

[57] **ABSTRACT**

A portable display device capable of presenting a document in an easy to read format, in which a simultaneous display of different parts of the document in reasonable sizes can be made, by a simple operation of the device. The display device comprises a document memory for storing documents to be displayed, at least two display screens for displaying the documents stored in the document memory means, and a display control unit for controlling displays of the documents on the display screens to be in a linked mode in which the displays on the display screens are linked together and in a separate mode in which the displays on the display screens are independent from each other.

22 Claims, 14 Drawing Sheets